REMARKS

This paper is in reply to the Office Action dated April 23, 2007. In this paper, Applicant has amended claims 1, 5, 7 and 8. Claims 1-3 and 5-18 are pending. Reconsideration of the application, as amended, is requested.

112 Rejection

Claims 5 and 8-13 were rejected under 35 U.S.C. 112, second paragraph.

Claim 5 has been amended to change "binary composition" to "base composition", to clarify that the composition may contain two or more materials (i.e., the base resin) and the SIS (for the first base composition) and the rosin ester (for the second base composition).

Claim 8 has been amended to clarify that the third extruded layer is formed from the mixture of the base resin and tackifier.

Withdrawal of these rejections is requested.

103 Rejections

Claims 1-3 and 5-9, 11-14 and 16-18 were rejected under 35 U.S.C. 103(a) as unpatentable over U.S. Patent No. 5,141,809 to Arvedson et al. in view of U.S. Patent No. 6,602,454 to McGuire et al. and U.S. Patent No. 5,085,927 to Dohrer and any one of U.S. Patent No. 5,089,321 to Chum et al. or U.S. Patent No. 5,376,439 to Hodgson et al. or U.S. Patent No. 5,558,930 to DiPoto.

Claims 10 and 15 were rejected under 35 U.S.C. 103(a) as unpatentable over these same references and further in view of U.S. Patent No. 5,852,143 to Sishta et al.

Applicant disagrees with these rejections.

As summarized in previous papers, the pending claims are directed to methods of making multi-layered films, the films having a first layer (release layer) comprising a first polyolefin and an antiblocking agent, a second layer (intermediate or core layer) comprising HDPE, and a third layer (cling layer) comprising ethylene methyl acrylate or ethylene vinyl acetate and a tackifier comprising SIS (styrene-isoprene-styrene) and rosin ester. New in this paper, the claims have been amended to clarify that the plastic film is a food-contacting plastic film, not one for pallet

wrapping and other such applications. None of Arvedson et al., McGuire et al., Dohrer, the additional four references, nor their combination, discloses or suggests the pending claims.

Arvedson et al. teaches a multi-layer film that has a cling layer of ethylene and acrylate or vinyl acetate and tackifier, which could be a rosin ester. A non-cling layer can be present, which includes a polyolefin such as LDPE or polypropylene and antiblocking agent, but it is without tackifier. Further, a third (core or intermediate) layer may be present, to modify the overall physical properties of the film. Arvedson et al. merely states that this core or intermediate layer may comprise any other suitable polymer.

Arvedson et al. is lacking the specific composition of the third or intermediate layer as claimed by the present application, that of having a second polyolefin comprising HDPE, and optionally further including LDPE or LLDPE or mixtures thereof (as in claims 3, 11, 16) and up to levels of about 40% (as in claims 12, 17).

The Office Action turns to any or all of Chum et al., Hodgson et al. and DiPoto for having a multilayered film where the core layer comprises HDPE.

Hodges et al. teaches having a three-layer film comprising very low density ethylene polymer and low to medium density ethylene polymer (VLDPE/LDPE) as the skin layers and HDPE as the core layer. In this reference, HDPE is co-extruded with the VLDPE/LDPE mixture. Chum et al., in the Background, states that a layer of HDPE can be used as a structural or core layer. This discussion provides the outer layers as a barrier layer (e.g., ethylene vinyl alcohol - EVOH) and a heat seal layer (e.g, polyethylene). DiPoto teaches using a HDPE homopolymer layer with a sealant layer, such as ethylene vinyl acetate copolymers (EVA). Other suitable sealant layers are ethylene methyl acrylate copolymers (EMA), butene, hexene, octene linear copolymers of polyethylene, ethylene acrylic acid copolymer (EAA), ethylene methacrylic acid (EMAA) copolymers, hexene-butene copolymers, ionomers such as Surlyn, acid and anhydride modified ethylene vinyl acetates such as Bynel, medium density polyethylene (MDPE), low density polyethylene (LDPE), ultra low density polyethylene (ULDPE), very low density polyethylene (VLDPE), linear polyethylenes, and metallocene catalyst based polyethylenes which are copolymerized with 10-20% octene, hexene, butene or mixtures thereof, and blends thereof.

Although each of the three references cited states that HDPE can be used as a layer (e.g., a core layer), none of these three references pairs the HDPE core layer with the specific layers claimed in this pending application -- i.e., a first layer comprising a first polyolefin and an antiblocking agent and a third layer comprising ethylene methyl acrylate or ethylene vinyl acetate and a tackifier comprising SIS (styrene-isoprene-styrene) and rosin ester. There is no suggestion in any of the three references that the claimed combination, which includes HDPE, would be desirable or even suitable, in particular for a food-contacting plastic wrap.

Further, Arvedson et al. is lacking the combination of HDPE and both SIS and rosin ester. The Office Action attempts to turn to Dohrer for the use of SIS as a tackifier in a cling layer. What Dohrer does not teach is combining the SIS with rosin ester, in HDPE.

The various combinations of references provided by the Office Action are still lacking, at least, a three layered film having a second layer of HDPE, with the first and third layer (outer layers) as claimed. Further, these references are not directed to plastic film constructions that are suitable for a food-contacting plastic film, and one skilled in the art knows various reasons those references would not lead one to a suitable construction for a food-contacting film.

One of the reasons these various references do not, and cannot disclose a three layered food-contacting film as claimed, is that the various films and materials of these references are designed for unitizing (e.g., wrapping) pallets. It is well known in the plastics industry that such wrapping films cannot be made with more than miniscule amounts of HDPE, as films with HDPE will not work on stretch wrap machines, which is the method used for wrapping pallets.

Common materials for wrapping films include LLDPE (linear low density polyethylene) resin in the 2-4 melt index (MI) range for wrap manufactured on a cast line. Materials with higher MI will reduce properties to unacceptable values for the intended (wrapping) purpose. It is known in the plastics industry that 3-4 MI range is optimal to get the best production rate out of the manufacturing line and the best extension (stretch) of the resulting film, usually in the 150% to 300% range. Also for the wrapping films, a density of 0.916 to 0.921 is needed. Higher densities reduce film properties like puncture and tear; at lower densities the film becomes rubbery and soft and does not stretch effectively on a stretch wrapper. Pallet wrapping films have to have some type of cling surface, either on one side or both sides. A rubbery clingy film

is not suitable for use on a high speed packaging line, as it will not unwind without necking in and breaking. For wrap materials manufactured on a blown film line, 0.5-2 MI resins are common for stretch films. Low MI resins are common place, with about 1 MI LLDPE being used for handwrap films (which are applied by hand (lightweight unwind device) and the stretch is in the 50-75% range).

HDPE is not a material that is used in high amounts for films such as those described by the cited references. As stated above, it is well known in the plastics industry that wrapping films cannot be made with high amounts of HDPE, at least for the following reasons.

In the art of plastics processing, HDPE and polypropylene are used in stretch films ONLY for skin layers to produce a slip layer (i.e., to produce a layer with a low coefficient of friction, usually under 1.5, or thin layers in a multilayer film (those layers occupying 10-15% of the total film). Although various references might say that either or both polypropylene and HDPE can be used in a multilayer film, it is known by those of skill in the art that these materials can only be used a thin layer for added stiffness in the film or as an outer layer to provide a desired coefficient of friction.

Further, films with high levels of HDPE material simply would not elongate sufficiently on the variety of stretch wrap equipment available in the market today at any typical design standards. Wrapping films are designed to stretch 150-300%.

As an example, a typical plastic t-shirt bag or grocery bag (such as those from retailers such as Target and Walmart) is made from 100% HDPE. The bag does not stretch or elongate easily without tearing. Also, the bag is highly puncture resistant but once torn, it zippers very easy. These are properties that are undesired for pallet wrapping material.

For these reasons, when reviewing the literature and patent references for pallet wrap films, the bulk of the film material is LLDPE, for its puncture and tear resistance (also referred to as durability and toughness), not HDPE. Pallets and/or their contents have corners and edges that can easily puncture and tear a wrap film.

For these reasons, HDPE and polypropylene are not used in high amounts in pallet wrap films.

Various desired properties of wrapping films (e.g., 150-300% stretch, high puncture resistance) are described above; these properties are due to the LLDPE. HDPE has a density of 0.945 and up, which is much higher than that of LLDPE, has very poor puncture resistance on a cast film, and also very poor tear resistance. It would not be possible to make a wrap film with HDPE.

The food-contacting film of the present application includes structures of polypropylene / HDPE / and adhesive. The film has low tendency to tear and low puncture because of the HDPE and polypropylene layers. The film is not tough and durable like a stretch film because it does not need to be and if it were, no one could tear it on a cutter edge. The box would fall apart!

At least for these reasons, one skilled in the art would not turn to the teachings of the cited references, which are to wrapping films, for a food-contact film.

Sishta et al. is added for the teaching of silica particles as an antiblocking agent. Sishta et al. is lacking, at least, the combinations lacking from the references described above.

At least for these reasons provided, Applicant believes that all claims are patentable over the cited references and their combinations, and withdrawal of these rejections is requested.

Summary

In view of the above amendments and remarks, Applicant respectfully requests a Notice of Allowance. If the Examiner believes a telephone conference would advance the prosecution of this application, the Examiner is invited to telephone the undersigned at the below-listed telephone number.

Respectfully submitted,

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